

## **COMPARTMENTALIZED BEVERAGE CONTAINER**

### **BACKGROUND OF THE INVENTION**

**[0001]** This application claims priority of U.S. Serial No. 60/463,019, filed on April 15, 2003. The present invention relates to the field of beverage containers, and more specifically, it is concerned with a container that separates portions of the beverage. Even more specifically, the invention relates to compartmentalizing a travel container in order to facilitate heat or cold retention for prolonged and selective consumption of liquids.

**[0002]** Travel containers are popular with those who consume beverages on the road or in locations where refills are not a practical option. For instance, truck drivers and other travelers stop for fuel at stores that in modern times serve much more than just fuel. These convenience stores attempt to cater to as many needs as possible by providing restrooms, food, and a burgeoning variety of hot and cold self-serve beverages. The types of containers provided by the convenience stores for these self-serve beverages range in complexity from disposable styrofoam cups with minimal temperature retaining qualities to durable plastic cups topped with lids having drinking apertures. The latter example, reusable plastic containers that hold up to 46 ounces of beverage, have gained popularity with truck drivers and other travelers who may refill the large containers at established convenience stores at discounted prices. The advantage of large durable beverage containers is that users can carry more beverage with them, and thus extend the time until the next travel stop. The disadvantage of large durable beverage containers is that, while in use, the beverage tends to rapidly become tepid, i.e. the beverage tends to rapidly conform to the ambient temperature. Even if the drinking aperture is small, this phenomenon occurs more rapidly than the time it takes a normal person to consume the beverage. Thus, while a traveler may purchase, for example, 32 ounces of hot coffee, 16 ounces of the coffee may become cold by the time the user reaches the bottom half of the container.

**[0003]** Other containers constructed from more expensive and insulative materials, such as stainless steel, serve markets similar to automotive travel. Though a stainless steel container may preserve the heat of coffee when closed, once a user removes the lid the coffee in the container will soon lose its heat.

**[0004]** The issue of beverage temperature conformity is illustrated perhaps most distinctly in disposable styrofoam or reinforced paper and plastic containers. These low cost disposable containers impart a very narrow window of time before its contents conform to ambient temperature.

**[0005]** Thus, it can be seen that there is a need for a beverage container that addresses the purchase of large quantities of beverages and keeping those beverages at their purchased temperature. It can also be seen that such technology should be available in a variety of containers differing in scope and cost. It can further be seen that such beverage containers should be designed for ease of manufacture.

#### **SUMMARY OF THE INVENTION**

**[0006]** The present invention achieves its intended purposes, objects, and advantages through a new, useful, and unobvious combination of component elements, with the use of a minimum number of functioning parts, at a reasonable cost to manufacture, and by employing only readily available materials. In these respects, the present version of the invention substantially departs from the conventional concepts and designs of the prior art, and in so doing provides an apparatus that substantially fulfills this need. Additionally, the prior patents and commercial techniques do not suggest the present inventive combination of component elements arranged and configured as disclosed herein.

**[0007]** In one aspect of the invention, a compartmentalized beverage container may be constructed from insulating material for maintaining the temperature of a portion of a beverage. The container may comprise a first compartment and a second compartment which may be effectively sealed from the first compartment by a compartment sealing

means. The container may further comprise a lid, the lid further comprising an aperture for consumption. The lid may further comprise a lid sealing means to communicate with the compartment sealing means when the lid is placed on top of the container. The container may further comprise a selection means providing the selection of a portion of a beverage from the first beverage in the first compartment and the second beverage in the second compartment. The selection means may comprise a radially sliding tab or a snap-on tab, wherein the operation of the tabs select an open or closed position on the lid. The selection means may also comprise an external screw, wherein the operation of the external screw selects between the first and second compartments by pushing and retracting a panel in the partition. The selection means may also comprise an external lever at an apex of the container traveling a circumferential path, the lever opening a partition between the first compartment and second compartment, the lever connected vertically to the partition.

**[0008]** In another aspect of the invention, a divider removably inserts into a beverage container to provide a dynamic seal between two liquids. The divider may be horizontal, vertical, or otherwise oriented within the beverage container. In the horizontally-oriented embodiment, the divider separates into an upper and lower compartment, and may comprise a outer sealing means and a rigid positioning means interior of the outer sealing means. The divider may further comprise a selection means, allowing a user to select the contents of the lower compartment after the contents of the upper compartment have been consumed.

**[0009]** These and other features, aspects and advantages of the present invention will become better understood with reference to the following drawings, description and claims. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be made to the accompanying drawings and descriptive matter in which there are illustrated preferred embodiments of the invention. The foregoing has outlined some of the more pertinent objects of the invention. These objects should be construed to be merely illustrative of some of the more prominent feature and applications of the present invention. Many other beneficial results can be attained by

applying the disclosed invention in a different manner or by modifying the invention within the scope of the disclosure. Accordingly, other aspects and objects may be discerned from a fuller understanding of the invention and the detailed description of the preferred embodiments in addition to the scope of the invention illustrated by the accompanying drawings.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

**[0010]** FIG. 1a is a side view of a compartmentalized beverage container, according to preferred embodiments of the current invention.

**[0011]** FIG. 1b is a top view of a compartmentalized beverage container showing a tab selection means, according to preferred embodiments of the current invention.

**[0012]** FIG. 1c is a top view of a compartmentalized beverage container showing a tab selection means, according to preferred embodiments of the current invention.

**[0013]** FIG. 2a is a side perspective view of a compartmentalized beverage container, according to preferred embodiments of the current invention.

**[0014]** FIG. 2b is a top view of a compartmentalized beverage container, according to preferred embodiments of the current invention.

**[0015]** FIG. 2c is a plan view of the vertical segments according to preferred embodiments of the current invention.

**[0016]** FIG. 3a is a side perspective view of a compartmentalized beverage container, according to preferred embodiments of the current invention.

**[0017]** FIG. 3b is a cross-sectional view a compartmentalized beverage container, according to preferred embodiments of the current invention.

**[0018]** Fig. 4 is a top perspective view of a compartmentalized beverage container, according to preferred embodiments of the current invention.

**[0019]** Fig. 5 is a top perspective view of a lid for a compartmentalized beverage container, according to preferred embodiments of the current invention.

## **DETAILED DESCRIPTION OF THE INVENTION**

**[0020]** The following detailed description shows the best currently contemplated modes of carrying out the invention. The description is not to be taken in a limiting sense, but is made for the purpose of illustrating the general principles of the invention and the best mode for practicing the invention, since the scope of the invention is best defined by the appended claims.

**[0021]** Liquids normally conform to ambient temperature by either becoming cooler or warmer. This process is accelerated when the liquid is not kept in an insulated compartment and exposed to the ambient temperature, especially during consumption. The invention provides a container that allows a portion of its contents to remain at its intended or original temperature. The invention allows a portion of the liquid being consumed to be selectively stored and sealed in an insulated state, without opening the portion to be exposed to ambient temperature as during consumption, in order to preserve its temperature for later consumption or use. Furthermore, the invention provides an mechanism by which the consumer can easily select which storage compartment is to be made available for immediate consumption, leaving the remaining storage compartment sealed to better maintain its temperature. The invention provides two compartments for storing two portions of liquids that may have different temperatures and/or carbonation levels, thus temporarily preserving the levels of the non-selected compartment. The invention further provides that the mechanism defining these compartments to be stationary or removable. The invention provides access to these compartments in a travel friendly container, accessible from the same end and easily selectable by a user without undue manipulation of the container. This ease of accessibility makes the invention ideal for a travel container for liquids where it is desirable to maintain a certain temperature. It is believed that the prior art does not teach or suggest the invention either taken alone or in combination with other prior art.

**[0022]** Referring initially to FIG. 1a, an embodiment 10 according to the invention is shown as applied to a travel beverage container 11 having a first compartment 100 and a second compartment 110. Container 11 may be constructed out of standard materials known to the art to provide insulating and durable qualities, such materials comprising plastics and styrofoams. Compartments 100 and 110 are vertically oriented in this embodiment, extending from a base 115 to a top 120 of container 11. Compartments 100 and 110 are separated from each other by a partition 125. Partition 125 is constructed from a similar material as the container 11 so that the liquids contained in either the first compartment 100 or the second compartment 110 are both separated and insulated from each other. Thus, if a user of the travel beverage container wishes to use the first compartment 100 for coffee and the second compartment 110 for milk, then the partition 125 will prevent the two liquids from mixing with one another and preserves the temperatures of hot coffee and cold milk. Partition 125 therefore defines the boundary between the compartments 100, 110 from the base 115 to the top 120 of container 11. Partition 125 may be manufactured to be removable from the container 11. Ridges (not shown) may be molded or otherwise fabricated in the walls of container 11 to guide and seal partition 125 when it is inserted therein.

**[0023]** Partition 125 may be applied to any generic container in which a user wishes to partition or divide liquids. As shown in the embodiment of FIG. 1a, base 115 may taper from the main body 15 of the container 11 for purposes of fitting into a normal sized cup holder found in automobiles and trucks. Furthermore, base 115 may comprise a weighted portion 117 designed to provide balance when the contents of the first compartment 100 and second compartment 110 are unequal. However, other container shapes may be used without departing from the scope of the invention. For example, container 11 may be cylindrical or have a circular cross section with sloping and converging sides. Specifically, container 11 could have a wide, volcanic-styled base to achieve balance. Regardless of the choice of container shape, partition 125 must conform to the longitudinal cross section of container 11.

**[0024]** Referring now to FIG. 1a and FIG. 1b, container 11 is shown with a lid 130, located at the top 120 of the container 11 when in use by a consumer. Lid 130 comprises a plurality of ridges 135 molded or otherwise fabricated on the underside of lid 130. The ridges 135 conform to the upper boundary of partition 125 to effectively seal the first compartment 100 from the second compartment 110 when lid 130 is placed upon the top 120 of the container 11. Lid 130 may comprise a first aperture 140 and a second aperture 142, both located along the perimeter of lid 130 and allowing access to the contents of a compartments 100, 110, respectively. Lid 130 further comprises a selection mechanism to choose between accessing the first or the second compartments 100, 110 and the contents therein. In the embodiment 10 shown in FIG. 1a, the selection mechanism comprises a slidable tab 145 affixed to each of the apertures 140, 142 and which releasably closes and seals the respective compartment 100, 110 so that the relative temperatures of the contents of the compartments 100, 110 are not compromised. FIG. 1c shows a configuration in which a single aperture 140 is provided; selection of the alternate compartment may consist of removing the lid 130, rotating it 180°, and installing the lid 130 to engage ridges 135 on the opposite sides of partition 125, thus allowing aperture 140 to provide communication with the alternate compartment.

**[0025]** Another embodiment 200 of the invention is represented in Fig. 2a showing a side view of a beverage container 201. The container 201 is shown as comprising an upper compartment 205 and a lower compartment 210 separated horizontally by sealing means 221. Container 201 may be constructed out of materials well known in the arts to provide insulating and durable qualities, such as plastics or foams. The compartments 205, 210 are horizontally oriented in this embodiment 200, dividing the container 200 into approximately equal sections. Compartment sealing means 221 is constructed from a similar material as the container 201 so that the liquids contained in either the upper compartment 205 or the lower compartment 210 are not only separated, but insulated from each other. Thus, if a consumer wishes to use the first compartment 205 for coffee and the second compartment 210 for milk, then the compartment sealing means 221 prevents

the two liquids from mixing with one another and preserves the temperatures of hot coffee and cold milk. Compartment sealing means 221 therefore defines the boundary between the compartments 205, 210. As with embodiment 10, the upper portion of base 215 of the container 201 may taper from main body 212 of the container 201 for purposes of fitting into a normal sized cup holder found in motor vehicles such as automobiles, trucks, boats, and ATVs. Furthermore, base 215 may also have a weighted portion 217 to provide balance when the contents of the compartments 205, 210 are unequal. At the top 220 of the container 201, the lid 230 releasably seals the upper compartment 210 so that a user may fill the container 201 and seal the lid 230 through a lid sealing means 235. Lid sealing means 235 may comprise any means well known in the art to seal a lid to a cup, such as snap-on lids, screw top lids, or the like. Lid 230 may have an aperture 240 in its perimeter to allow a consumer to drink the contents from the container 201. Aperture 240 may comprise a tab 242 which lockably closes and releases to preserve the temperature of the contents of the container 201. Tab 242 may further comprise a rubber portion that communicates with the top of container 201, frictionally and effectively sealing the aperture 240.

[0026] Referring now to FIG. 2b, an embodiment of a compartment sealing means 221 is shown. It is provided with a circular gasket 222 affixed to the perimeter of a fixed disk 223 having a hole 224 cut near the perimeter thereof. The hole 224 should be sufficiently near the perimeter to allow efficient drainage of the lower compartment 210 but not so close to the perimeter as to weaken the portion 228 of the fixed disk 223 supporting gasket 222 along the edge thereof. A movable disk 227 is movably attached about a common center 227 of fixed disk 222 and movable disk 227 so that the latter may rotate about center 227. Close frictional contact between fixed disk 222 and movable disk 227 to prevent the contents of lower compartment 210 from flowing into upper compartment 205. An additional member 228 may be optionally used to apply sufficient pressure over a broader area and apply stiffness to movable disk 226.



**[0027]** Referring to FIG. 2a, an embodiment of the selection mechanism is shown coincident with the lid compartment sealing means 235. In this particular embodiment, a pair of longitudinal arms 255 are provided for rotary movement of the movable disk 226. The arms 255 may be affixed at their lower ends to opposing sides of movable disk 226 by any means well known to the art, such as by gluing with a non-toxic adhesive; forming the arms as integral extensions of the movable disk 226 and bending them at 90° angles to the movable disk 226; attaching them to upturned tabs associated with the movable disk 226; and the like. The arms 255 are situated so that coordinated, circular movement of the arms from their upper ends 251 will also move the movable disk 226 to either cover or uncover hole 224.

**[0028]** The upper ends 251 of arms 255 may be configured in several ways to facilitate rotational movement thereof. They may have downturned ends so that they may be bent over the rim of the container 201; in this manner the lid 230 may be connected to the rim over the downturned upper ends 251. The lid 230 may be removed to reposition the arms 255. In another embodiment, the arms 255 may be attached to the lid 230 so that in-place, rotational movement of the lid 230 will also impart rotational movement to the arms 255. Other methods of imparting rotational movement so as to open and close hole 224 may be used according to the scope of the invention.

**[0029]** It should be noted that the compartment sealing means 221 may be separately available for manual insertion into a suitably sized container, i.e. that compartment sealing means 221 is removable. In this case, the arms 255 must be adjustable to allow them to be positioned over the rim of the container. One such method of providing adjustability for the arms 255 is to configure the arms 255 as two rigid, rectangular strips as shown in FIG. 2c. Here, the strips 251, 252 are shown as overlapping at one end. The upper strip 252 has tabs 254 along its end which are bent downwardly into a clamping arrangement. The clamping arrangement may comprise a rubber seal that protrudes into its respective container. Similarly the lower strip 251 has tabs 253 along its end which are bent upwardly

into a clamping arrangement, so that the strips 251, 252 are cooperatively engaged by the tabs 253, 254 as shown.

[0030] In still another embodiment of the invention, a single arm 255 may extend from center 227 upwardly to penetrate the lid 230 at its center. A knob (not shown) may be provided so that turning the knob opens and closes the movable disk 226.

[0031] Another embodiment 300 of the invention is represented in Fig. 3a. This embodiment 300 of the invention shows a container 301 that may be constructed out of materials known to the art to provide insulating and / or durability qualities, such as plastics and styrofoam. FIG. 3a depicts a side view of the container 301, which comprises an upper compartment 305 and a lower compartment 310. The compartments 305, 310 are horizontally oriented in this embodiment 300, dividing the container 301 into approximately equal portions. The compartments 305, 310 are separated by a compartment sealing means 325. Compartment sealing means 325 is constructed from a similar material as the container 301 so that the liquids contained in either the upper compartment 305 or the lower compartment 310 are not only separated, but insulated from each other. Thus, if a consumer wishes to use the first compartment 305 for coffee and the second compartment 310 for milk, then the compartment sealing means 325 prevents the two liquids from mixing with one another and preserves the temperatures of hot coffee and cold milk. Compartment sealing means 325 therefore defines a boundary between the compartments 305, 310. The upper portion of base 315 of the container 301 may taper from the main body 312 of the container 301 for purposes of fitting into a normal sized cup holder found in automobiles and trucks. Furthermore, base 315 may consist of a weighted portion 317 designed to provide balance when the contents of the first compartment 305 and second compartment 310 are unequal. At the top 320 of the container 301, the lid 330 releasably seals the upper compartment 310 so that a user may fill the container 300 and seal the lid 330 through a lid sealing means 335. Lid sealing means 335 may comprise any means well known in the art to seal a lid to a cup, such as snap-on lids, screw tops, or any other means known in the arts to seal a lid to a container. Within lid 330 may be an aperture 340

allowing a consumer to drink the contents from the container 301. Aperture 340 may comprise a tab 342 that closes and locks to preserve the temperature and/or carbonation of the contents of the container 301. Tab 342 may further comprise a rubber portion that communicates with the top of container 301, frictionally and effectively sealing the aperture 340. The rubber portion could also be comprised of any other material known to flexibly form a seal as it journals into a container.

[0032] Referring now to FIG. 3a and FIG. 3b, the selection mechanism in this embodiment may be found coincident with the compartment sealing means 325. Compartment sealing means 325 comprises an external screw 350, screw passage 360, a static partition 370 and a retracting partition 365. External screw 350 represents the actuation of the selection means by which a consumer selects between the upper and lower compartments 305, 310. External screw 350 passes through screw passage 360 and actuates the selection means by journaling through screw passage 360, connecting with the retracting partition 365. Thus, the turning of screw 350 one direction and the opposite direction respectively opens and closes retracting partition 365. The manipulation of the screw selects between the upper 305 and lower 310 compartments of the container 300. Any suitable mechanism by which screw 350 opens and closes the compartment sealing means 325 may be employed herein without departing from the scope of the invention. Furthermore, the contents from the lower container 310 may be available at their original temperature and/or carbonation despite. Normally, the passage of time would have caused such contents to conform to ambient conditions.

[0033] Still another embodiment of the invention shown in Fig 4. foresees the container 400 as having a removable inner container 420. Inner container 410 may comprise compartments 405, 410 as shown in Fig. 4. The user of container 400 may rotate and fix the inner container 410 by initially manually turning the top of inner container 400 and then securing the inner container to container 400 through a securing means. The securing means may be any known means in the arts known to easily and releasably secure an inner container to a larger one, for example a snap-on arrangement. The securing means

does not foresee the securing means comprising a flexible ring around the top of the container. Other aspects of Fig. 4 are foreseen in an embodiment that is integrally molded into a one-piece container **400**, as well.

**[0034]** Still another embodiment may be foreseen by the current invention as in Fig. 5. Fig. 5 shows an internal seal **550** that communicates and seals with a vertical divider **430** as seen in Fig. 4.

**[0035]** As has been demonstrated, the present invention provides an advantageous apparatus for separating liquids into two sealed and separate compartments to maintain the temperatures and carbonation levels of beverages stored in each compartment. This invention provides this advantageous apparatus in a travel size befitting of automotive settings. While the preferred embodiments of the present invention have been described, additional variations and modifications in those embodiments may occur to those skilled in the art once they learn of the basic inventive concepts. Therefore, it is intended that the appended claims shall be construed to include both the preferred embodiment and all such variations and modifications as fall within the spirit and scope of the invention.